Appendix S1

Table S1: Table showing complete list of trees present at all sites in this study. All trees were placed in phenology categories based on which season they flower.

| Flowers during both seasons | Flowers in Dry Season | Flowers in Rainy Season | Trees without floral resources for animals |
|---|---|---|---|
| *Conostegia xalapensis*<br>*Miconia argentea*<br>*Yuca elephantipes* | *Inga lauriana*<br>*Inga micheliana*<br>*Inga rodrigueziana*<br>*Inga vera*<br>*Schizolobium parahybum*<br><br>*Alchornea latifolia*<br>*Cybistax donnell-smithii*<br><br>*Solanum* sp. | *Trema micrantha*<br>*Spathodea campanulata* | *Quercus corrugata*<br>*Pinus pseudostrobus* |

Table S2: Table describing the threshold value selected for each variable for both metrics. The maximum value of the mean for each variable was first determined. Then all threshold values from 5-95% of the maximum value of the mean were run. Threshold values were selected based on the value that had the strongest correlation (highest slope) with bee richness

| | **Phenological Resource Availability [Metric One]** | | | **Contemporaneous Availability [Metric Two]** | |
|---|---|---|---|---|---|
| | *Resource Variable* | *Threshold Value* | | *Resource Variable* | *Threshold Value* |
| Metric 1a | **Flowering tree species richness** | 0.62 | Metric 2a | Floral resources from trees | 0.15 |
| Metric 1a | **Flowering tree abundance** | 0.34 | Metric 2b | Floral resources from groundcover | 0.21 |
| Metric 1a | **Proportion # Trees in Flower** | 0.1 | | | |
| Metric 1b | **Groundcover species richness** | 0.58 | | | |
| Metric 1b | **% Groundcover in Flower** | 0.4 | | | |

Table S3: Colinearities between threshold metric values.

| | Coffee | Flowering tree richness | Flowering tree abundance | % Trees in Flower | Flowering Groundcover Richness | % Groundcover in Flower |
|---|---|---|---|---|---|---|
| Coffee | 1 | 0.015 | -0.003 | -0.016 | -0.161 | -0.074 |
| Flowering tree richness | | 1 | 0.842 | 0.806 | -0.020 | 0.209 |
| Flowering tree abundance | | | 1 | 0.893 | 0.049 | 0.323 |
| % Trees in Flower | | | | 1 | -0.015 | 0.238 |
| Flowering Groundcover Richness | | | | | 1 | 0.627 |
| % Groundcover in Flower | | | | | | 1 |

Table S4: Moran's I results

| Model | Observed | Expected | SD | P-value |
|---|---|---|---|---|
| **Bee Abundance** | -0.025 | -0.014 | 0.03 | 0.718 |
| **Bee Richness** | -0.019 | -0.014 | 0.03 | 0.879 |
| **Native Social Bee Abundace** | -0.007 | -0.014 | 0.03 | 0.836 |
| **Native Solitary Bee Abundance** | -0.015 | -0.014 | 0.03 | 0.963 |
| **Managed Bee Abundance** | -0.009 | -0.014 | 0.03 | 0.879 |

Table S5: Means and ranges found for each site, during each sampling time, as well as total means and ranges for all vegetation and bee variables.

| | June | | | July | | | January | | | February | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | Range | n | Mean | Range | n | Mean | Range | n | Mean | Range | n | Mean | Range | n |
| Flowering tree richness | 0.54 | 0-1 | 22 | 0.5 | 0-1 | 13 | 1.4 | 0-4 | 22 | 0.63 | 0-2 | 22 | 1.02 | 0-4 | 79 |
| Flowering tree abundance | 1.5 | 0-6 | 22 | 1.5 | 0-6 | 13 | 2.3 | 0-10 | 22 | 1.5 | 0-9 | 22 | 1.75 | 0-10 | 79 |
| % Trees in Flower | 13.11 | 0-42.8 | 22 | 13.59 | 0-40 | 13 | 21.70 | 0-62.5 | 22 | 11.70 | 0-56.25 | 22 | 15.19 | 0-63 | 79 |
| % Groundcover in Flower | 5.95 | 0-27.1 | 22 | 3.34 | 0-23.1 | 13 | 6.10 | 0-35 | 22 | 5.12 | 0-27.5 | 22 | 3.07 | 0-35 | 79 |
| Richness of Groundcover in Flower | 3.18 | 0-7 | 22 | 1.5 | 0-4 | 13 | 1.9 | 0-5 | 22 | 2.3 | 0-7 | 22 | 4.5 | 0-7 | 79 |
| % Coffee flower | 0 | 0 | 22 | 0 | 0 | 13 | 0 | 0 | 22 | 47.93 | 0-100 | 22 | 11.98 | 0-100 | 79 |
| Bee abundance | 8.95 | 0-24 | 22 | 8.9 | 0-23 | 13 | 7.9 | 0-11 | 22 | 18.4 | 0-35 | 22 | 8.9 | 0-35 | 79 |
| Bee Richness | 4.27 | 0-9 | 22 | 3.38 | 1-7 | 13 | 1.9 | 0-6 | 22 | 5.63 | 0-12 | 22 | 3.8 | 0-12 | 79 |

Table S6: ANOSIM results showing similarity in bee community between each sampling period.

|          | June   | July   | January | February |
|----------|--------|--------|---------|----------|
| June     | x      | 0.0018 | 0.0013  | 0.0001   |
| July     | 0.0018 | x      | 0.0092  | 0.0001   |
| January  | 0.0013 | 0.0092 | x       | 0.0066   |
| February | 0.0001 | 0.0001 | 0.0066  | x        |
| R=0.2406 |        |        |         |          |

Table S7: GLMM Values from Likelihood Ratio Tests

| | Degrees of Freedom | | Loglik | Chisq | Pr(|>Chisq|) |
|---|---|---|---|---|---|
| Bee Abundance | 7 | GC Interaction | -249.26 | 22.327 | <0.001 |
| | 9 | Coffee flowering | -361.03 | 245.86 | <0.001 |
| | 9 | Season | -243.23 | 10.26 | <0.001 |
| | | | | | |
| Bee Richness | 8 | Trees Total | -156.91 | 0.4996 | 0.4797 |
| | 8 | GC Total | -163.25 | 13.183 | <0.001 |
| | 8 | Season | -163.11 | 12.911 | <0.001 |
| | 8 | Coffee flowering | -178.63 | 43.953 | <0.001 |
| | | | | | |
| Native Social Bee Abundance | 7 | GC Interaction | -166.75 | 12.925 | <0.001 |
| | 9 | Season | -165.76 | 10.947 | <0.001 |
| | 9 | Coffee | -184.92 | 49.279 | <0.001 |
| Native Solitary Bee Abundance | 8 | Trees Total | -154.87 | 2.7593 | 0.09669 |
| | 8 | GC Total | -160.29 | 13.586 | <0.001 |
| | 8 | Season | -159.1 | 11.205 | <0.001 |
| | 8 | Coffee | -208.68 | 110.37 | <0.001 |
| Managed Bee Abundance | 8 | Present Trees | -132.90 | 0.1208 | 0.7282 |
| | 8 | GC Present | -133.41 | 1.1435 | 0.2849 |
| | 8 | Season | -135.60 | 5.5373 | 0.0186 |
| | 8 | Coffee | -178.99 | 92.296 | <0.001 |

Figure S1: Conceptual illustration of method used to define metric 2a. The individual variables used to formulate this metric, floral resources from trees, are shown on the x-axis. The percentages are possible threshold percentages that represent a percentage of the maximum value for the individual variable across sampling sites. If the response variable exceeds the selected threshold percentage, then that variable receives a value of 1 and if it is below then it receives a value of 0, with a maximum value of 3 and minimum value of 0 (Left). Conceptual illustration of method used to define metric 2b. The individual variables used to formulate this metric, floral resources from ground cover, are Groundcover Species Richness and % Groundcover in Flower. The percentages are possible threshold percentages that represent a percentage of the maximum value for the individual variable across sampling sites. If the response variable exceeds the selected threshold percentage, then that variable receives a value of 1 and if it is below then it receives a value of 0, with a maximum value of 2 and minimum value of 0 (Right).
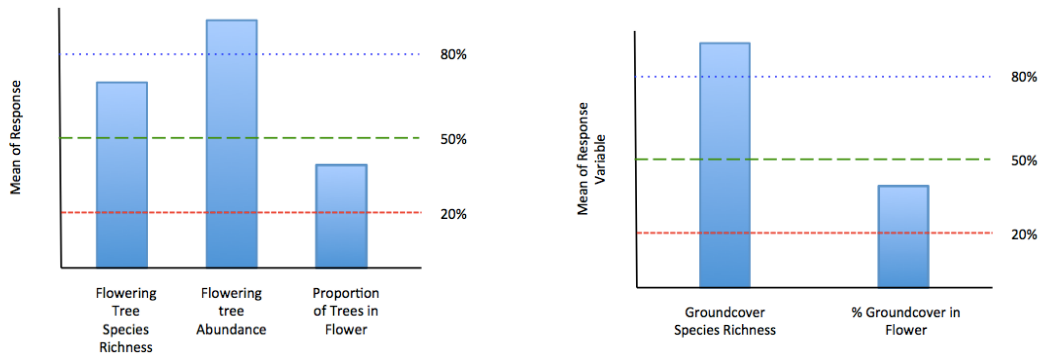
Figure S2: Results of correlations between bee richness and the number of variables that exceed the designated threshold percentage for every threshold percentage from 5-95%. Threshold percentages were chosen based on which percentage had the highest correlation with bee richness. Linear coefficients for every threshold percentage [5-95%]. Threshold percentage was selected for metric 2a and 2b based on the threshold with the highest linear coefficient.